

Request for Expressions of Interest for an
Depleted Uranium Hexafluoride Integrated Solution Conversion Contract
and Near-Term Demonstrations

The U.S. Department of Energy through its Office of Nuclear Energy, Science and Technology is seeking expressions of interest (EOI) on the disposition of the Department's depleted uranium hexafluoride (DUF₆) inventory. The Department's objective is an integrated solution to eliminate or reduce the long-term liability, including potential environmental and safety concerns, to the Federal government for up-keep of the DUF₆ inventory. The Department will soon issue a final *Programmatic Environmental Impact Statement for Alternative Strategies for the Long-Term Management and Use of Depleted Uranium Hexafluoride* followed by a Record of Decision. This EOI request will likely provide information to implement the Department's preferred alternative, if selected in the Record of Decision, and formulate a viable procurement strategy for an integrated solution.

One of the most important policy statements made by the Government with regard to DUF₆ has been Public Law 105-204, signed by the President in July 1998. This law directed the Secretary of Energy to prepare and submit a plan to ensure that all funds accrued on the books of the United States Enrichment Corporation (USEC) for the disposition of DUF₆ will be used for the construction and operation of plants at Paducah and Portsmouth to treat and recycle the DUF₆, consistent with the National Environmental Policy Act (NEPA). The Law also stipulates that the plan should be structured for construction of the plants to begin by January 31, 2004.

"Treat and recycle," in this context, refers to the chemical processing of DUF₆ to remove the fluorine and create products that would present both a lower long-term storage hazard and provide materials that would be suitable for use or disposal. Importantly, this process would also allow the private and government sectors to explore the use of the products.

The Department remains concerned about the future potential displacement of workers and economic disruptions at the Gaseous Diffusion Plants in Kentucky and Ohio in the wake of USEC privatization. The Department plans to work with the existing bargaining units for the onsite workforce, and community reuse organizations to assist in this transition. The Department is willing to commit funds to cover worker wages during training and training support to local community colleges. Many of these workers represent important experience which may be valuable to the Department's DUF₆ disposition program.

One of the most significant legacies left with the Department after the privatization of USEC is approximately 700,000 metric tons of DUF₆ stored in approximately 57,700 cylinders (37,000 are in Paducah, Kentucky, 16,000 in Portsmouth, Ohio, and 4,700 in Oak Ridge, Tennessee).

DUF₆ is a stable but toxic, granular solid, much of which has been stored for long periods. The

advanced age of some of the steel cylinders in which the DUF_6 is contained has highlighted a potential and significant environmental and safety hazard. This was underscored by Defense Nuclear Safety Board Recommendation 95-1 which recommended that the Department improve storage and maintenance of the DUF_6 cylinders. While DUF_6 is not as significant a radiological threat as other isotopes, it is a chemical hazard. Since 1990, the Department has conducted a focused program of cylinder inspections, recoatings, and relocations to assure that DUF_6 is safely contained until the Department arranges for its disposition.

The Department believes that the private sector, rather than the Government, may be better able to provide solutions for the management of the Department's DUF_6 inventory. A key Departmental objective is to fully integrate all elements of managing the Department's DUF_6 inventory into a single contracting arrangement. Management of the Department's DUF_6 inventory involves the following elements: cylinder surveillance and maintenance; the design, construction, operation, and final decommissioning of conversion facilities; storage or use of conversion end products; and disposition of end products not used -- uranium and fluorine compounds and empty storage cylinders. The Department anticipates that required conversion facilities will be built, owned, and operated by the private sector.

The Department wishes to better understand the capability of the private sector to handle this significant challenge. The Department is considering a variety of activities including the construction of facilities ranging from demonstration size plants to full-scale conversion plants.

The Department solicits your organization's ideas, opinions, and interest in participating in all or part of the Department's management of the DUF_6 inventory. Information provided through this EOI request will assist the Department in determining the best procurement strategy. Responses should be structured specifically addressing the following:

1. Description of your organization, its capabilities, and its interest in the Department's DUF_6 program.
2. The feasibility of a single integrated contract approach which fully incorporates all or most of the Department's DUF_6 management elements.
3. Description of your organization's proposed approach to meet the Department's objective. Describe the process that would be used to convert the DUF_6 . Identify if this process is a proprietary process and is patented or has a patent pending. If this process is patented, identify who owns the patent and any licensing information. Identify and describe if the proposed process has been demonstrated or commercially applied and at what scale. Identify any challenges and risk in applying the proposed process in a full scale production plant. Identify how your organization would minimize these risks.

4. The necessity, in terms of technological and economic considerations, of near-term demonstration-scale facilities at Paducah and Portsmouth that will provide substantive information which benefits the overall DUF₆ Program. Include any information your organization considers relevant, but specifically address:
 - S the purpose of the demonstrations with analyses that such demonstrations are safe and cost-effective;
 - S availability of equipment and buildings at the Paducah and Portsmouth sites that could support such demonstrations;
 - S NEPA and regulatory oversight issues which would need to be addressed to conduct the demonstrations;
 - S cost, schedule, safety considerations, and approximate numbers of personnel required to perform the demonstrations -- including the decontamination and decommissioning (D&D) of the demonstrations;
 - S transition to full-scale production.
5. Recommendations regarding the characteristics that should be reflected in full-scale plants. Include any information your organization considers relevant, but specifically address:
 - S product forms, throughput, waste streams, process chemical requirements, and general plant utility and other support requirements;
 - S modularity of facility design -- including advantages and disadvantages of modular approach;
 - S availability of existing plant designs, equipment, and buildings that could help accelerate the construction of full-scale plants at the Paducah and Portsmouth sites;
 - S NEPA and regulatory oversight issues which would need to be addressed to construct and operate the conversion plants;
 - S cost, schedule, safety considerations, and approximate numbers of personnel required to construct and operate full-scale plants -- including the eventual D&D of the conversion facilities.
6. Innovative approaches regarding the use of government land or facilities at Paducah and Portsmouth.
7. Private sector financing, construction, ownership and operation of conversion facilities that can be used to minimize cost, and begin conversion facilities construction as soon as possible before January 2004. Identify and justify the appropriate contract type(s) for each phase of the project.
8. Government actions that are needed to ensure successful implementation of respondent's concepts for this program.

9. Potential factors that should be considered by the government in selecting the proposed approach to implement this program.
10. Beneficial use or sale of DUF_6 and DUF_6 -derived materials for restricted end-uses in commercial and Federal nuclear programs that could reduce the government's life-cycle costs for conversion, storage and disposition of the material, and innovative approaches to establish such activities.
11. The safe transportation, conversion, and disposition of approximately 4,700 DUF_6 cylinders currently stored at the Oak Ridge site.
12. The establishment of worker training programs with respect to the handling of materials and operation of the conversion facilities.

Proprietary information provided in your organization's response should be marked appropriately. This information will be held in confidence by the Department.

Send 12 copies of your responses to Thomas E. Brown, Procurement Analyst, U.S. Department of Energy, MA-52, 1000 Independence Avenue, S.W., Washington, DC 20585 no later than April 5, 1999. Before submitting questions regarding this EOI, please review the "*frequently asked questions*" section on this web page.